CLAIMS

1. An apparatus in a remote station for decoding a preamble channel, wherein the preamble channel carries variably sized preamble sequences, comprising:

a plurality of preamble size detection elements for determining a number of slots occupied by a preamble sequence on the preamble channel, wherein each of the plurality of preamble size detection elements outputs a potential preamble sequence and a best path metric; and

a selection element for choosing a true preamble sequence from the potential preamble sequences output from the plurality of detection elements.

2. The apparatus of Claim 1, wherein each of the plurality of detection elements comprises:

a de-interleaver for operating over a predetermined number of slots of the preamble channel, wherein each de-interleaver of the plurality of detection elements operates over a different predetermined number of slots;

a decoder for extracting preamble information from the preamble sequence; and

a sequence checker for determining if an identifier is present in the preamble information.

3. The apparatus of Claim 2, wherein at least one of the plurality of detection elements further comprises a combining element operating over at least two slots, wherein the at least one of the plurality of detection elements operates over the at least two slots.

4. The apparatus of Claim 2, wherein the decoder is a convolutional decoder.

5. The apparatus of Claim 2, wherein the identifier is a Medium Access Control (MAC) identifier.

6. The apparatus of Claim 2, wherein each decoder in the plurality of detection elements outputs a best path metric value and the potential preamble sequence.

7. The apparatus of Claim 1, wherein the selection element is further for determining the number of slots occupied by a data subpacket on a non-preamble channel, wherein the number of slots occupied by the data subpacket is associated with the number of slots occupied by the true preamble sequence.

8. The apparatus of Claim 1, wherein the selection element is further for determining the number of slots occupied by a data subpacket on a non-preamble channel, wherein the number of slots occupied by the data subpacket is carried by the true preamble sequence.

9. A method for determining preamble information transmitted on a preamble channel, comprising:

de-interleaving over one slot of the preamble channel to form a first de-interleaved sequence;

de-interleaving over at least two slots of the preamble channel to form a second de-interleaved sequence, wherein the first slot of the at least two slots is the slot used in the first de-interleaving step;

soft-combining the second de-interleaved sequence;

decoding the first de-interleaved sequence to generate a first potential preamble and a first metric value;

decoding the second de-interleaved sequence to generate a second potential preamble and a second metric value; and

choosing between the first potential preamble and the second potential preamble to select a true preamble.

10. The method of Claim 9, wherein choosing between the first potential preamble and the second potential preamble comprises:

checking for an identifier in the first potential preamble and in the second potential preamble; and

selecting either the first potential preamble or the second potential preamble in accordance with the presence of the identifier.

11. The method of Claim 10, wherein selecting either the first potential preamble or the second potential preamble comprises selecting either the first potential preamble or the second potential preamble in accordance with the better of the first metric value or the second metric value if the identifier is present in both the first potential preamble and the second potential preamble.

12. The method of Claim 10, wherein selecting either the first potential preamble or the second potential preamble comprises selecting either the first potential preamble or the second potential preamble in accordance with the better of the first metric value or the second metric value if the identifier is not present in the first potential preamble or in the second potential preamble.

13. A method for determining the preamble information carried by a preamble channel, comprising:

de-interleaving over a variable number of slots for a plurality of de-interleaving results;

soft-combining symbols within each of the plurality of de-interleaving results, except in the instance when the de-interleaving is over one slot;

decoding the one-slot de-interleaved symbol and the soft-combined symbols associated with each of the plurality of de-interleaving results;

checking the decoded symbols for an identifier; and

extracting the preamble information from the checked symbol that carries the identifier.

14. An apparatus for determining preamble information transmitted on a preamble channel, comprising:

means for de-interleaving over one slot of the preamble channel to form a first de-interleaved sequence;

means for de-interleaving over at least two slots of the preamble channel to form a second de-interleaved sequence, wherein the first slot of the at least two slots is the same slot as the first de-interleaving step;

means for soft-combining the second de-interleaved sequence;

means for decoding the first de-interleaved sequence to generate a first potential preamble and a first metric value and for decoding the second de-interleaved sequence to generate a second potential preamble and a second metric value; and

means for choosing between the first potential preamble and the second potential preamble as a true preamble.

15. An apparatus for determining the preamble information carried by a preamble channel, comprising:

means for de-interleaving over a variable number of slots for a plurality of de-interleaving results;

means for soft-combining symbols within each of the plurality of de-interleaving results, except for the de-interleaving result over one slot;

means for decoding the one-slot de-interleaved symbols and the soft-combined symbols associated with each of the plurality of de-interleaving results;

means for checking the decoded symbols for an identifier; and

means for extracting the preamble information from the checked symbol carrying the identifier.